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Advancing Excellence in Health Care

RESEARCH ACTIVITIES

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Preventing Childhood Obesity—Researching What Works

When describing just how complex it is to study interventions for childhood obesity prevention, researcher Sara Bleich, Ph.D., takes a cue from the classroom and turns to the alphabet.

"Typically if you're looking at a community-based intervention for obesity prevention, you can't just say, 'If you change A, what happens to B?' Usually what happens is you change A through J, and you have to figure out what happens to K," explains Bleich, associate professor of health policy and management at Johns Hopkins. "It's complicated to tease out the individual impact of different things." But she tries.

"Obesity is something that we don't entirely understand. We know that people are getting bigger because they either eat too much or exercise too little. But the complex things that are driving that relationship are not entirely understood," says Bleich. "When you combine that with a disease whose etiology we don't totally understand, it's a messy topic."

More than 20 researchers at Johns Hopkins University, including 9 affiliated with the Johns Hopkins Evidence-based Practice Center, tackled that topic in their systematic review of childhood obesity prevention programs, which was supported by AHRQ's Effective Health Care Program. Several of the researchers spoke with *Research Activities*.

The AHRQ review *Childhood Obesity Prevention Programs: Comparative Effectiveness Review and Meta-Analysis* analyzed childhood obesity interventional studies that aimed to improve diet, physical activity, or both in many settings, including schools, homes, primary care clinics, child care settings, the community, and combinations of these settings in high-income countries. More than

80 percent of the studies were conducted in school-based settings.

A comprehensive approach

"In measuring the effectiveness of community-based programs that impact childhood obesity, more comprehensive interventions are definitely better," says Bleich about the review. "The research shows that to help prevent obesity among children, we must focus on both diet and exercise in the communities

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From the Director

Sometimes conditions that are the easiest to diagnose can be the hardest to cure.

This paradox is especially true for obesity. For children, it is particularity critical to prevent or treat obesity early on to avoid related diseases like diabetes and heart disease later.

In the United States, about one in three children are overweight and nearly one in five children in the United States are obese. Minority groups, such as African Americans, Hispanics, and Native Americans, and low-income groups are at higher risk of obesity.

Since 2010, the First Lady's Let's Move! initiative has brought together Federal agencies, businesses, and nonprofit organizations that are trying to solve the problem of childhood obesity within a generation. (LetsMove.gov)

The U.S. Department of Health and Human Services has many programs to help children and families, including the President's Council on Fitness, Sports and Nutrition and the National Institutes of Health's We Can! (Ways to Enhance Children's Activity & Nutrition®)program.

At AHRQ, we're committed to supporting research on obese and overweight adults and children. A few months ago, our AHRQ review *Childhood Obesity Prevention Programs: Comparative Effectiveness Review and Meta-Analysis* was posted on our Web site and was highlighted in the *Journal of Pediatrics*. Through our Effective Health Care Program, reviewers from the Johns Hopkins Evidence-based Practice Center analyzed studies that aimed to improve diet, physical activity, or both in many settings, including schools, homes, primary care clinics, child care settings, the community, and combinations of these settings in high-income countries. The review emphasized comprehensive interventions and the need for more research in a variety of settings and situations. Our cover story features the researchers who worked on this review and why they are so passionate about this issue.

Two years ago, the president proclaimed September as National Childhood Obesity Awareness Month, encouraging us all to try and prevent and reverse this trend. Next month, I'll be walking along the Potomac River with my nieces. What will you do?

Carolyn Clancy, M.D.

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Also in this issue

Correction: Dr. Catherine Forneris, the clinical psychologist interviewed in last month's story on adult post-traumatic stress disorder (page 4) has a Ph.D., but not an M.D. ■

Childhood obesity

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where children live and go to school since the environment is a key contributor to obesity risk. Focusing on the community is especially important for children since they generally have little or no control over their environment."

> **"Environment is a key contributor to obesity risk."**

Principal investigator of the AHRQ-funded project, Youfa Wang, M.D., M.S., Ph.D., has devoted his career to preventing obesity and has authored more than 130 publications. He is the founding director of the Johns Hopkins Global Center on Childhood Obesity.

He says, "This is an important systematic review in our field. We examined various childhood obesity prevention studies published over the past three decades and we focused on high-income countries. The majority of the childhood obesity prevention studies were school-based. We found modest to strong evidence that school-based interventions can help reduce children's risk of obesity. Our review provided a number of important insights to help guide future research in the field and guide future intervention programs. For example, very limited studies have tested environment- and policy-based interventions. More future research in this area is needed."

Experts in the field from other institutions, including universities, health departments, and government organizations, contributed to this systematic review by providing comments and suggestions on the review protocol and the 800-page evidence report.

The review called for more studies on the effectiveness of interventions in a variety of settings other than schools. In the United States, 17 percent of U.S. children and adolescents are obese, and approximately 30 percent are either overweight or obese, according to national survey data. Minority groups, such as African Americans, Hispanics, and Native Americans, and low-income groups are at higher risk of obesity.

> **"We found modest to strong evidence that school-based interventions can help reduce children's risk of obesity."**

A personal issue

Wang also understands the complexity of the issue on a personal level. "In my own house, we notice a difference in our two young boys–who are both very healthy. But my wife and I are a little concerned about one of them regarding his body weight. My sons have the same parents and live in the same household, but they have different tastes and personalities," he explains. "We care and we have the knowledge to make a difference.

Compared to what we know how some other parents provide meals and snacks to their children, we see the differences we have made in helping our children to eat a healthy diet." Yet, Wang acknowledges the interaction between genetics, culture, environment, and many other factors play a role in obesity.

"My doctor says. . ."

Researcher Nakiya N. Showell, M.D., M.P.H., says that this research combined with her other ongoing research and clinical experience have broadened her perspective and changed the way she counsels her patients and their families. "The perspective I have on the factors that influence what a child eats and how much they play has changed," explains Showell, a pediatric fellow in the Division of General Pediatrics and Adolescent Medicine and incoming assistant professor at Johns Hopkins.

"Some things are beyond a family's control. There may be limited access to healthy foods and vegetables and they can be difficult to afford. I'm not just saying to my patients that you need to limit your screen time, play outdoors, and eat fresh fruits and vegetables every day without

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Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. See the back cover of Research Activities for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

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asking questions like—'Where do you buy food? Are you able to get healthy foods where you live? Can your child get a healthy meal at school? Are you able to pack a lunch for your child?' I'm starting to ask the questions first before I give the guidance and tailoring my counseling because I have a better understanding of what could affect one's obesity risk."

"Some things are beyond a family's control. There may be limited access to healthy foods and vegetables and they can be difficult to afford."

Showell shared a story about one of her patients, a normal-weight baby she had been caring for since birth. "At around age two, her BMI [body mass index] skyrocketed above the 95th percentile for weight, so she was technically obese. I had a very open discussion with her parents and I told her parents that I was very concerned. We talked about diet, physical activity, and more. They looked at me a little bewildered because they had never been asked these questions," says Showell.

When Showell followed through with recommendations, she made sure they were culturally sensitive. "I told them, 'I don't want you to change all your family traditions. There are ways to do what you're doing in a healthy way.' I followed her for months and her weight was on a much healthier trajectory, and her BMI was much better. When I asked the parents, they told me that when their daughter would tell people, 'My doctor says I can't have any soda,' and 'My doctor says I can't have too many tortillas,' they really responded. Rather than just saying, 'no,' the little girl says, 'My doctor says.'"

Beyond body mass index

Researcher Lawrence J. Cheskin, M.D., F.A.C.P., started a weight control program at Johns Hopkins in 1990. He primarily sees adults, but he is very interested in preventing obesity in children.

"It is extremely difficult to change people's body weight," he says. "It is extraordinarily difficult to fight the headwinds of our society that has promoted obesity in our children. We have a lot to do to truly tackle this epidemic."

"We have a lot to do to truly tackle this epidemic."

Yet, Cheskin is hopeful. "The most effective way we can tackle obesity is preventing it in children," he says. "There are favorable factors when it comes to children. One is that, for better or worse, they are much more under our control than adults are. An eight year old can't jump in the car and go to the fast food store and use a credit card."

Cheskin tells about one of his patients, a 10-year-old girl he had been seeing, who presented him with a handmade card made out of blue construction paper. "We spent hours together. Her parents were involved along with a dietician, an exercise specialist, and a psychologist. Later, she sent me this lovely card thanking me for helping her. She told me that it was so hard being overweight because kids made fun of her, and she was looking forward to not being made fun of anymore," he explains.

"This was hard to hear, because as adults we don't usually do that sort of thing or at least we would recognize how cruel and unfair it is to judge a person based on their weight. This had nothing to do with the health consequences of obesity. It's about how we treat other human beings with problems. She'll feel better about herself after losing weight, even though the judgment is not fair. She should not feel bad about herself. She is not defined by her body weight. But that's the reality of our culture. No matter how many of us are obese, we still have this bias and prejudice."

For Cheskin, his work is about this 10-year-old girl and children like her. "Most everyone cares about our children and the world's children," he says. "We need to devote more resources and make obesity prevention a priority as a society. This will have a lasting effect for generations to come." ■ *KM*

Editor's note: You can access the review at the Effective Health Care Program Web site at www.effectivehealthcare.ahrq.gov.

Hospitals with more nurses with bachelor's degrees have reduced rates of postsurgical deaths

Hospitals that had a 10 percentage point increase in the number of registered nurses (RNs) with bachelor's degrees between 1999 and 2006 also had an average reduction in surgical patient deaths of 2.12 deaths per 1,000 patients. These hospitals also had an average reduction of 7.47 deaths per 1,000 patients with complications, according to a new study. Neither staffing levels, skill mix, nor years of experience as an RN was significantly associated with reduced mortality. In 2011, the Institute of Medicine recommended that 80 percent of the registered nurse workforce have at least a bachelor's degree by the year 2020. As of 2008, the date of the most recent nationwide survey of RNs, only 45 percent of RNs had earned a bachelor's degree.

The researchers retrospectively compared surgical patient demographics and outcomes, as well as nursing staff education levels, at 134 hospitals in Pennsylvania during 1999 and 2006. The mean proportion of nurses with a bachelor's degree barely moved from 32.5 percent in 1999 to 32.7 percent in 2006. Yet, about 40 of the hospitals increased their percentage of RNs with a bachelor's degree by 5 percent or more during the study period. Slightly more than 25 hospitals showed no percentage change, while the remainder had declines of 5–10 percent or more. A few even showed a 25 percent decrease in RNs with bachelor's degrees.

The findings were based on data from two surveys of 40–50 percent of all licensed RNs in Pennsylvania, patient administrative data for 134 hospitals, and American Hospital Association data on characteristics of acute care hospitals in Pennsylvania. The study was funded in part by AHRQ (HS18534).

More details are in "An increase in the number of nurses with baccalaureate degrees is linked to lower rates of postsurgical mortality," by Ann Kutney-Lee, Ph.D., R.N., Douglas M. Sloane, Ph.D., and Linda H. Aiken, Ph.D., R.N., in the March 2013 *Health Affairs* 32(3), pp. 579-586. *DIL*

Despite guidelines, secondary prevention medications are less used in patients with transient ischemic attack than stroke

The number of cases of transient ischemic attack (TIA) in the United States may be approaching 500,000 per year, and the current estimate of more than 795,000 new or recurrent strokes per year is expected to grow. Patients discharged after a TIA have a similar or higher 1-year risk of death and rehospitalization compared to those with acute ischemic stroke (AIS). In addition, the risks of postdischarge all-cause death, rehospitalization, or hospitalization for recurrent stroke were also similar to or higher for patients with TIA.

According to a new study of 2,800 patients admitted to 100 U.S. hospitals, stroke, affecting 24.3 percent of TIA patients and 20.6 percent of AIS patients, was the most common reason for rehospitalization. The next most common reason for rehospitalization was medical/pulmonary complications. Alhough recommendations for secondary prevention of stroke after TIA and AIS are the same, the study found that patients with a TIA are less likely to receive low-density lipoprotein testing than their AIS counterparts, and may receive delayed evaluation for their symptoms. Statins and diabetes medicines were used less frequently after TIA compared with AIS; antiplatelet drugs were used more frequently but the antiplatelet drug warfarin was used less frequently after TIA. The researchers believe that patient outcomes may be improved by efforts aimed at increasing patient and provider adherence to evidence-based guidelines. This study

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Tranasient ischemic attack
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was supported in part by AHRQ (HS16964).

See "Death and rehospitalization after transient ischemic attack or acute ischemic stroke: One-year outcomes from the Adherence Evaluation of Acute Ischemic Stroke-Longitudinal Registry," by DaiWai M. Olson, Ph.D., Margueritte Cox, M.S., Wenqin Pan, Ph.D., and others in the *Journal of Stroke and Cardiovascular Diseases, 2013* [Epub ahead of print]. ■ *MWS*

Multiple interventions offer pathways to improved medication adherence

Nearly half of medications for chronic conditions, such as hypertension, are not taken according to directions. What's more, 20 to 30 percent of prescriptions are never filled. Policy-level interventions, such as reduced copayments improve adherence across a variety of clinical conditions. At the patient level, case management, education, and behavioral support also help with medication adherence, according to a new study.

Researchers conducted a systemic review of the literature to identify interventions that improve medication adherence. Included in the analysis were 73 articles that featured 62 trials investigating 18 types of patient, provider, or system-level interventions. There were also four observational studies and one additional trial that looked at the impact of policy interventions on reducing medication copayments and improving drug coverage for patients.

Effective interventions ranged from simple strategies such as patient mailings to elaborate programs featuring case management and multidisciplinary care. More than half of the 62 trials (53 percent) did show improved outcomes in medication adherence. Many interventions were likely to be complex and address multiple pathways for change.

Although researchers found evidence that several interventions improve medication adherence, not all effective interventions were proven to work for all clinical conditions. Interventions that improve adherence across multiple clinical conditions include policy interventions to reduce copayments or improve prescription drug coverage, systems interventions to offer case management, and patient-level educational interventions with behavioral support.

However, interventions such as collaborative care seemed to work best for a specific condition (depression or depression and diabetes). Certain interventions, such as virtual clinics and blister packaging, have not yet been tested in a range of clinical conditions. Therefore, while virtual clinics and blister packaging may appear to be effective for one condition, it is not yet clear if they work for other conditions. The researchers call for more studies to examine which interventions can improve medication adherence long-term. The study was supported in part by AHRQ (Contract No. 290-07-10056).

See "Interventions to improve adherence to self-administered medications for chronic diseases in the United States," by Meera Viswanathan, Ph.D., Carol E. Golin, M.D., Christine D. Jones, M.D., M.S., and others in the December 4, 2012 *Annals of Internal Medicine* 157(11), pp. 785-795. *KB*

■ ■ ■

Automated phone monitoring system provides important information about medication discontinuation

Interactive voice response system (IVRS) technology has the potential to directly contact large numbers of patients to assess their adherence to their medication regimen, as well as symptoms experienced while taking the medication. A new study found that rates at which patients reported by phone their discontinuation of medication were substantially higher than those documented in the electronic medical record. This suggests that the IVRS may be an important tool for improving physician-patient communication about medication adherence, note the researchers.

Over 1,500 patients from 11 primary care clinics affiliated with the Brigham and Women's Hospital agreed to receive an e-pharmacovigilance call that used IVRS. Overall, 3.9 percent of patients who completed the e-pharmacovigilance call and 1.0 percent of patients who did not complete the call had discontinuation of the target medication recorded in the electronic medical record within 6 months of their eligibility date. This difference was statistically significant. Those who completed the call also had higher use of primary or specialty care (32.8 percent) than those who did not complete the call (18.7 percent). The rates of other outcomes (acute care services and death) were similar in both groups (12.2 and 9.8 percent).

Each patient had recently been started on one of 32 medications selected for the study. Four weeks after a primary care visit, patients received an e-pharmacovigilance call (i.e., a telephone call using IVRS) about whether they were still taking the medication recently prescribed and, if they had stopped, why? Following the call, the system sent a single email to the primary care provider if the patient: (1) reported stopping a medication intended for chronic use and indicated that they had not discussed this with their provider, (2) reported a pre-defined list of symptoms, or (3) requested that an email be sent to the provider.

Among the subgroup of 799 participants who noted at least one symptom, 176 (22 percent) attributed their symptom to the medication. Patients who thought that their symptom was related to the medication were more likely to report that they had stopped the medication (13.1 percent) compared with those who did not think that the symptom was related to the medication (1.5 percent). This study was supported by AHRQ (HS16970).

See "Active pharmacovigilance and healthcare utilization," by Jennifer S. Haas, M.D., Elissa Klinger, S.M., Lucas Xavier Marinacci, B.A., and others in the November 2012 *American Journal of Managed Care* 18(11), pp. e423-e428. ■ *MWS*

The effect of medication reconciliation on medication discrepancies is unclear

Transitions in care, such as admission to or discharge from the hospital or between hospital units, puts patients at risk for errors due to poor communication and inadvertent information loss. Unintended medication discrepancies remain common at discharge. The formal process for identifying and correcting medication discrepancies across transitions of care, medication reconciliation, has been widely endorsed and is mandated by health care accreditation bodies in the United States and Canada. Yet, most unintentional medication discrepancies found during medication reconciliation have no clinical significance, according to a new study. The researchers conducted a systematic literature review focusing on the effect of medication reconciliation on unintentional discrepancies with the potential for harm.

Discrepancies were only considered clinically significant if they posed a nontrivial risk of harm to patients. All included studies reported a category that amounted to "trivial," "minor," or "unlikely to cause harm," with all other unintentional discrepancies deemed to be clinically significant. The researchers included 18 studies evaluating 20 hospital-based medication reconciliation interventions, with pharmacists performing medication reconciliation in 17 of the 20 interventions. Their review suggests that only a few unintended discrepancies have clinical significance.

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Medication reconcilliation

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Furthermore, most patients have no unintentional discrepancies. Therefore, the actual effect of medication reconciliation on reducing clinically significant discrepancies in the inpatient setting remains unclear. The researchers point out that while medication reconciliation alone probably does not reduce post-discharge hospital use, it may do so when bundled with interventions aimed at improving care transitions. They also caution that there may be a need to consider a longer window of observation than 30 days in order to demonstrate the benefits of medication reconciliation. This study was supported by AHRQ (Contract No. 290-07-10062).

See "Medication reconciliation during transitions of care as a patient safety strategy," by Janice L. Kwan, M.D., Lisha Lo, M.P.H., Margaret Sampson, Ph.D., and Kaveh G. Shojania, M.D. in the March 5, 2013 *Annals of Internal Medicine* 158(5) Part 2, pp. 397-403. ■ *MWS*

Most hospitalizations of older veterans for therapeutic failures or adverse drug withdrawal events are potentially preventable

Ninety percent of hospital admissions of older veterans for therapeutic failures (TFs) and adverse drug withdrawal events (ADWEs) are potentially preventable, reveals a new study. It also found that black veterans were significantly more likely to have a TF-related hospitalization than white veterans.

A therapeutic failure is defined as "a failure to accomplish the goals of treatment, resulting from inadequate or inappropriate drug therapy and not related to the natural progression of disease." An ADWE is defined as "a clinical set of symptoms or signs that are related to the removal of a drug."

The researchers randomly selected 678 unplanned hospitalizations of veterans 65 years of age and older. Medication chart review and a Therapeutic Failure Questionnaire were used to determine if the hospitalization was caused by a TF. An algorithm was also applied to determine if an ADWE was the cause. Of the veterans studied, 75.5 percent were white and 12.8 percent were black.

Forty veterans had unplanned hospitalizations due to 34 TFs and 8 ADWEs involving 54 drugs. More than half (58.8 percent) of all TF-related admissions involved the cardiovascular system. The most common specific condition was heart failure and the most common medication class involved was beta-blockers. Of the 34 TFs, 32 were deemed preventable if medication nonadherence and suboptimal prescribing had been corrected. In the case of ADWEs, symptoms most commonly involved the cardiovascular system and the most common drug class was diuretics. Six of the eight ADWEs were preventable, with half resulting from medication nonadherence. Race was found to be the only significant factor associated with a TF-related hospitalization. Blacks and other non-white groups had an increased risk compared to whites. The study was supported in part by AHRQ (HS17695 and HS18721).

See "Prevalence of potentially preventable unplanned hospitalizations caused by therapeutic failures and adverse drug withdrawal events among older veterans," by Zachary A. Marcum, Pharm.D., M.S., Mary Jo V. Pugh, Ph.D., R.N., Megan E. Amuan, B.S., M.P.H., and others in the *Journal of Gerontology Series A Biological Sciences and Medical Sciences* 67(8), pp. 867-874, 2012. *KB*

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Implementation factors important in promoting successful interventions to reduce hospital falls

Falls in acute care hospitals are reported to range from 1.3 to 8.9 per 1,000 bed days. Hospitals have used multicomponent interventions to reduce fall risk by as much as 30 percent, according to four previous meta-analyses including 19 studies. An updated review supports that conclusion. Evidence from 11 studies examined the implementation of multicomponent interventions, such as risk assessment, patient and staff education, bedside risk sign, an alert wristband, footwear, and medication review.

The evidence suggests the importance of several implementation factors in successful fall reduction. These include leadership support, engagement of front-line clinical staff in the design of the intervention, guidance by multidisciplinary committee, pilot-testing the intervention, use of information technology, staff education and training, and changing nihilistic attitudes about falls.

Multicomponent interventions have been effective in hospitals that vary in size, location, and teaching status. However, the effects of context have not been well-studied. Also, the researchers caution that harms of multicomponent interventions are unclear, because they have not been studied systematically. Harms may include the potential for increased use of restraints and sedating drugs and decreased efforts to mobilize patients. This study was supported by AHRQ (Contract No. 290-07-10062).

For more details, see "Inpatient fall prevention programs as a patient safety strategy. A systematic review," by Isomi M. Miake-Lye, B.A., Susanne Hempel, Ph.D., David A Ganz, M.D., Ph.D., and Paul G. Shekelle, M.D., Ph.D., in the March 5, 2013 *Annals of Internal Medicine* 158(5) Part 2, pp. 390-396. ■ *MWS*

Chart biopsy may improve emergency department handoffs when patients are admitted to the hospital

A new practice, the chart biopsy, in which clinicians review a patient's electronic health record, may improve emergency department (ED) handoffs when patients are admitted to the hospital from the ED. The study authors found that the prehandoff chart biopsy aided clinicians in the general medicine service in three ways: getting an overview of the patient being admitted from the ED; preparing for handoff and subsequent care; and defending against potential biases (e.g., a particular diagnosis becoming established by its use in the ED, without sufficient evidence). In some cases, the prehandoff chart biopsy avoided unnecessary admissions or inappropriate placement of patients.

The researchers used data from the University of Michigan Health System, including 48 semistructured interviews, 349 hours of observations (146 hours in the ED, 108 hours on the hospitalist service, and 95 hours on the general medicine residency service). This involved a researcher shadowing 46 physicians, talking with many others, and recording 48 telephone handoff conversations between ED physicians and general medicine hospitalists and residents. The study was funded in part by AHRQ (HS18758).

More details are in "Chart biopsy: an emerging medical practice enabled by electronic medical records and its impacts on emergency department—inpatient admissions handoffs," by Brian Hilligoss, Ph.D., M.S.I.S., and Kai Zheng, Ph.D., in the March 2013 *Journal of the American Medical Informatics Association* 20(2), pp. 260-267. ■ *DIL*

Patients admitted to the hospital when the emergency department is crowded more likely to die during their hospital stay

Emergency department patients admitted to the hospital on days when the emergency department (ED) is crowded, have a 5 percent greater odds of dying after being admitted to the hospital, reveals a new study. These patients also had 0.8 percent longer hospital stays and 1 percent increase in costs per admission. The researchers collected hospital discharge data on 995,379 admissions from EDs during 1 year at 187 hospitals in California. ED overcrowding was determined by using daily ambulance diversion hours on the day of each admission. (Ambulances are typically diverted to other EDs when one is overcrowded).

Overcrowding resulted in 300 inpatient deaths, 6,200 additional hospital days, and $17 million in extra costs during the 1-year period. According to the researchers, ED crowding is a marker for worse care for all ED patients who may require admission. With an aging population and slow growth in the number of new EDs, overcrowding is likely to continue and even become worse. The researchers call for more effort by policymakers to develop national policy responses to this growing public health problem. The study was supported in part by AHRQ (HS18098).

See "Effect of emergency department crowding on outcomes of admitted patients," by Benjamin C. Sun, M.D., M.P.P., Renee Y. Hsia, M.D., Robert E. Weiss, Ph.D., and others in the December 5, 2012 *Annals of Emergency Medicine* [Epub ahead of print]. ■ *KB*

Most surgeons expect patients to buy-in to postoperative life support prior to high-risk surgery

How likely is it that the surgeon will follow through with a patient's wishes on postoperative life support? According to a new national survey, a majority of surgeons expect patient buy-in to postoperative life support during pre-operative consultations about high-risk surgery. Of the surgeons who responded to the survey, 62 percent reported that they would seek an informal preoperative agreement with the patient about limits to aggressive therapy, including life support. Very few surgeons (6 percent) said they would sometimes or always withdraw life support at postoperative day 1 of a high-risk operation at the request of the patient or their surrogate. However, by postoperative day 14, 85 percent would consider doing so.

If a patient was at moderate risk of needing long-term ventilator support or dialysis, but had a specific request to limit specific life support treatments following surgery, 60 percent of the surgeons would not agree to perform the operation. Those most likely to create an informal contract on postoperative life support with a patient were 2.1 times more likely to believe it was acceptable to withdraw life support on the 14th day after surgery; 30 percent more likely to be vascular rather than cardiothoracic surgeons; and 2.8 times more likely to do 11 or more high-risk operations per month than none per month.

Among the surgeons who would decline to operate on a patient who wanted to limit postoperative life support, the significant factors were being a cardiothoracic rather than a vascular surgeon (40 percent more likely), being in private practice without an academic affiliation (20 percent more likely than a surgeon in an academic practice), and being somewhat or very concerned about outcomes profiling of physicians (40 percent more likely). The researchers sent surveys to 2,100 cardiothoracic, vascular, and neurosurgeons and received 912 completed questionnaires. The study was funded in part by AHRQ (HS15699 and HS18996).

More details are in "Surgeons expect patients to buy-in to postoperative life support preoperatively: Results of a national survey," by Margaret L. Schwarze, M.D., M.P.P., Andrew J. Redmann, B.S., G. Caleb Alexander, M.D., M.S., and others, in the January 2013 *Critical Care Medicine* 41(1), pp. 1-8. ■ *DIL*

Emergency Error

The July/August issue of AHRQ's Web M&M (http://webmm.ahrq.gov/) spotlights the case of an 81-year-old woman with a history of pancreatitis who arrived at the ED with acute onset of severe abdominal pain, nausea, and vomiting. She had low blood pressure and rapid heart rate. Based on the exam and initial imaging, there was concern about small bowel obstruction.

The decision was made to take the patient to emergency laparotomy (surgery to explore the abdominal cavity). At the time of induction, she was given fentanyl, etomidate, and rocuronium. Almost immediately, her blood pressure dropped to 60/30 mm Hg. She was rapidly intubated, but her hypotension persisted despite epinephrine. Her heart rate slowed, and she ultimately developed asystole. Cardiopulmonary resuscitation was initiated. She received advanced cardiac life support for 10 minutes. She ultimately regained a pulse, but required high doses of vasopressors to maintain her blood pressure. The operation was cancelled and she was taken to the intensive care unit. Over the next 12 hours she had progressive multiorgan system failure, and she died the following morning.

The hospital's case review committee felt the patient likely had severe acute pancreatitis and not a small bowel obstruction. The committee's judgment was that this represented a diagnostic error and that this was a preventable death, because surgery would not have been indicated to manage her pancreatitis. The case raised many questions about the safety of and errors associated with emergency surgery.

The accompanying commentary written by Nicholas Symons, M.B.Ch.B., M.Sc., of the Imperial College London, points out that emergency surgery accounts for 80 to 90 percent of all surgical deaths, with emergency laparotomy particularly high risk, especially in elderly patients. Diagnosis and decisionmaking for these patients can be challenging, with senior physicians likely to be able to do this more reliably than those with less experience. Basic processes of care for these patients are frequently incomplete or omitted, such as administration of fluids, oxygen, and antibiotics and observation of patients' vital signs. Use of simple interventions such as checklists, clear job descriptions, and Plan-Do-Study-Act cycles can improve the reliability of care.

Discharge instructions in the PACU: Who remembers?

A 42-year-old woman was diagnosed with a torn anterior cruciate ligament (ACL) in her left knee after a skiing accident. Before arthroscopic surgery, she had been given postoperative instructions for ACL repair, which included 50 percent weight bearing starting immediately. Upon examination of the knee under anesthesia and with visualization from the arthroscope, the surgeon determined that the ACL was only partially torn and that the joint had sufficient stability. Rather than ACL repair, the surgeon performed microfracture to address damage to the intraarticular cartilage as well as meniscus repair.

After the surgery, the surgeon briefed the patient in the post-anesthesia care unit (PACU) on his findings and the revised postoperative instructions. Because of the microfracture procedure, she was to be completely non-weight bearing for 6 weeks—a significant change from what had been originally anticipated. However, the patient was still groggy from the anesthesia and asked the doctor to give this information to her husband. When the doctor called the number in the chart, he made contact with the patient's mother-in-law who misunderstood that the original postoperative instructions had changed. None of this was in writing.

When the husband picked up the patient, the written discharge instructions were generic and said "do as instructed." Confused, the patient followed the original, now incorrect, postoperative instructions. The confusion was never discovered at two subsequent postoperative visits. The patient pushed herself to bear weight several weeks after the surgery. When she experienced significant pain and called the surgeon, he chastised her for not following the postoperative plan. The patient was upset and concerned that she may have harmed her chances for a full recovery.

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Clinical cases

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The accompanying commentary by Kirsten Engel, M.D., of Northwestern University Feinberg School of Medicine, points out the importance of clear patient-provider communication during transitions in care, such as at discharge. These are high-risk moments during which patients and families assume care of a medical condition that is often new and unfamiliar. Unfortunately, communication failures during these moments of transition are common. She recommends that communication with patients be at or below the 6th grade reading level and that the complexity and quantity of information be limited. She also suggests that repeating information to the patient, follow-up contact with the patient after discharge, and enhanced care coordination with other providers may improve patient outcomes during care transitions.

Anesthesia: A weighty issue

A 77-year-old woman was evaluated preoperatively in anticipation of an elective left hip arthroplasty. She reported a history of hypertension that was reasonably well controlled on procardia, atenolol, and lisinopril. The patient reported no history of bleeding disorders, tobacco use, anesthetic complications, or other significant comorbidities. She was obese, with a body mass index of 34. She was medically cleared for surgery.

The following week, the patient underwent an uneventful left hip arthroplasty with general anesthesia via a laryngeal mask airway. She had stable vital signs throughout. She was breathing spontaneously following the procedure and was safely extubated and transferred to the recovery unit. The patient continued to receive doses of morphine sulfate for procedure-related pain, which became complicated by increasing somnolence.

She was noted to have oxygen desaturations and, as these persisted, an arterial blood gas was drawn that demonstrated an acidosis with a markedly elevated partial pressure of carbon dioxide of 81 mm Hg.

Attempts at noninvasive ventilation failed and the patient was reintubated for hypercarbic respiratory failure. After better pain control and airway assessment, the patient was extubated the following day and had an uneventful hospital course to discharge. Providers suggested in the discharge summary that the patient likely had obstructive sleep apnea (OSA) and would benefit from outpatient testing. A review of the case by the hospital quality committee raised questions about whether obese patients undergoing anesthesia should receive formal preoperative screening for OSA.

In the accompanying commentary, Ashish C. Sinha, M.D., Ph.D., of Drexel University College of Medicine and Hahnemann University Hospital, notes that managing anesthesia in obese patients requires careful attention and understanding of respiratory and cardiac physiology. He suggests that when providing anesthesia for obese and overweight patients, clinicians should consider multimodal analgesia and minimize the use of narcotics. Patients diagnosed with OSA should be monitored carefully prior to discharge home. Clinicians should keep a high index of suspicion for inappropriate ventilation in the postoperative period; obese patients have a low functional residual capacity along with a high metabolic demand for oxygen. For short, supine procedures, spontaneous ventilation intraoperatively may be considered in patients who have no other contraindication like reflux.

Editor's note: To read more clinical cases and submit your own, you can access AHRQ's Web M&M at http://webmm.ahrq.gov. ■

Continuity of health insurance for low-income adults increases the likelihood their children will maintain coverage

Children of parents who maintained continuous health insurance coverage had higher odds of remaining insured than those with parents who were uninsured for part of the year, according to a new study. Recent policy and health reform efforts have focused on providing health insurance directly to children. However, despite Federal and State programs, some eligible children remain uninsured.

Using data from 559 participants who took part in the Oregon Health Care Survey, researchers found that the more months the household's adults were covered, the higher the odds of all their children being insured at the end of the study period. For adults with coverage for 28–30 months of the 30-month study period, 91.4 percent reported all of the children in the household were covered when assessed at the end of the study period. Among adults insured for 19–27 months, 83.7 percent reported all children covered, compared with 74.3 percent for children of adults covered 10–18 months, and 70.8 percent of children of adults insured for less than 9 months.

The odds of reporting at least one uninsured child at 30 months were 7.26 times more likely when the adults in the household had the fewest months of coverage (0–9 months of coverage) compared to adults with 28–30 months of coverage. Children who had adults in the household with 10–18 months coverage were 4.98 times more likely to be uninsured, and children of adults with 19-27 months of coverage were 2.33 times more likely to be uninsured compared to adults with continuous insurance. This demonstrates a dose-response relationship between coverage for adults and children in the same household. The study was funded in part by AHRQ (HS16119, HS16181, HS18569).

More details are in "Does health insurance continuity among low-income adults impact their children's insurance coverage?" by Melissa Yamauchi, M.D., Matthew J. Carlson, M.A., Ph.D., Bill J. Wright, Ph.D., and others in the February 2013 *Maternal and Child Health Journal* 17(2), pp. 248-255. ■ *DIL*

Recent improvements in insurance coverage still leave disparities in pediatric health care for blacks and the poor

The proportion of uninsured children in the United States fell from 7.7 percent in 2002 to 6.3 percent in 2009, according to a new study. During this period, the proportion of privately insured children dropped from 65.3 percent to 60.6 percent, while children covered by public insurance rose from 27.0 percent to 33.1 percent. These are findings from the 10th annual report on access to and use of health care in the United States for children and youth. The data are from AHRQ's Medical Expenditure Panel Survey (2002–2009) and Healthcare Cost and Utilization Project (2005 and 2009).

AHRQ researchers Terceira A. Berdahl, Ph.D., Bernard S. Friedman, Ph.D., and colleagues found that the greatest progress in access to health care during the period was among Hispanic children, with those who were uninsured falling from 15.0 percent to 10.3 percent. In contrast, the percentage of uninsured black children remained essentially the same (declining slightly from 4.74 percent in 2002 to 4.13 percent in 2009). When insurance status was analyzed by income group, there were significant increases in public coverage over the study period among low-income children (from 57.1 percent to 64.3 percent) and middle-income children (from 12.6 percent to 16.5 percent), but not high-income children.

The researchers tracked other aspects of care as well over the 7-year period, for example, whether the child had a usual source of care; children's health care expenditures and out-of-pocket health care expenditures; and from 2005 to 2009, the number of overall hospital discharges for children; the leading diagnostic categories for these hospitalizations; and the annual number of preventable hospital admissions during the study period.

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Pediatric health care

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More details are in "Annual Report on Health Care for children and youth in the United States: Trends in racial/ethnic, income and insurance disparities over time, 2002–2009," by Dr. Berdahl, Dr. Friedman, Marie C. McCormick, M.D., Sc.D., and Lisa Simpson, M.B., B.Ch., M.P.H., in the May/June 2013 *Academic Pediatrics* 13(3), pp. 191-203. Reprints (Publication No. 13-R048) are available from AHRQ.* ■ *DIL*

Black and less educated Medicare patients with end-stage kidney disease rate their care worse than others

Patients with end-stage renal disease (ESRD) have complete or nearly complete kidney failure. In the United States, they are eligible for Medicare coverage regardless of age, if they have worked the required amount of time under Social Security. A new study reveals that, on average, Medicare beneficiaries with ESRD report patient experience as least as positive as non-ESRD beneficiaries, except for black and less educated ESRD patients, who report worse care experiences.

Patients with ESRD reported better experiences than other Medicare patients, albeit by small margins, for ratings of care, rating of physician, rating of prescription drug plan, getting prescription drugs, getting needed care, customer service, and getting care quickly. For 7 of 10 care measures, patients with ESRD reported better experiences.

Black ESRD patients, but not black Medicare patients as a whole, were more likely than white patients to report poor patient experiences. These differences, however, were small. In addition, the least educated ESRD beneficiaries reported poorer physician communication and care, a pattern that may be particular to ESRD and other chronic conditions that may reflect the complexity of ESRD care.

The researchers believe that educational outreach, efforts targeting physician supply and patient choice, and measurement of patient experiences according to sociodemographic subgroups may reduce these differences. Their findings were based on analysis of national data from the 2009–2010 Medicare Consumer Assessment of Healthcare Providers and Systems Survey. Their study included 823,564 Medicare beneficiaries, 3,794 of whom were ESRD patients. This study was funded by AHRQ (HS16980).

See "Experiences of care among Medicare beneficiaries with ESRD: Medicare Consumer Assessment of Healthcare Providers and Systems (CAHPS) Survey results," by Charlotte A.M. Paddison, Ph.D., Marc N. Elliott, Ph.D., Amelia M. Haviland, Ph.D., and others in the *American Journal of Kidney Disease* 61(3), pp. 440-449, 2013. *MWS*

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Coexisting conditions do not explain racial differences in surgery for non-small-cell lung cancer among U.S. veterans

Black veterans were 37 percent less likely to have surgery for non-small-cell lung cancer (NSCLC) than white veterans, reveals a new study. Differences in number of coexisting medical conditions that may affect surgery decisions did not explain this disparity. Other studies have also found that blacks with early-stage NSCLC were less likely than whites to be evaluated by a surgeon, to have surgery recommended, and to undergo surgery. Because the Veterans Administration (VA) is a health system expected to have minimal disparities in lung cancer treatment, the researchers examined the effect of racial differences in comorbidities on disparities in surgical treatment for lung cancer for patients diagnosed between October 2006 and December 2007.

The findings were based on analysis of data from the VA External Peer Review Program Lung Cancer Special Study. The 1,314 patients included 179 blacks and 1,135 whites. The prevalence of most

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Non-small-cell lung cancer
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individual coexisting conditions was similar among black and white patients. A smaller percentage of blacks had respiratory disease compared to whites, but more blacks had hypertension, liver disease, kidney disease, and illicit drug abuse. However, no racial difference was observed in overall comorbidity.

The association between most coexisting conditions and receipt of surgery did not differ by race, but the authors noted racial variation in surgery according to levels of comorbidity severity. For patients with severe comorbidities, 56 percent of blacks and 45 percent of whites did not have surgery. Also, for each comorbidity level blacks were more likely than whites to refuse surgery. The study was funded in part by AHRQ (T32 HS00079).

More details are in "Influence of comorbidity on racial differences in receipt of surgery among U.S. veterans with early stage non-small-cell lung cancer," by Christina D. Williams, Ph.D., Karen M. Stechuchak, M.S., Leah L. Zullig, Ph.D., M.P.H., and others in the February 2013 *Journal of Clinical Oncology* 31(4), pp. 475-481. ■ *DIL*

Smokeless tobacco use in Native Americans linked to post-traumatic stress disorder

Among various racial/ethnic groups, Native Americans have the highest rate of smokeless tobacco (ST) use. Chewing tobacco can lead to a host of health conditions, including oral cancers and gum disease. A recent study of two Native American tribes found an increased use of ST in Native Americans with post-traumatic stress disorder (PTSD) from the Northern Plains tribe. However, it found no significant association between ST use and PTSD among those from the Southwest tribe.

The researchers investigated the link between the use of ST and the presence of three mental health disorders (PTSD, panic disorder, and major depression) in two tribes. The study included 1,506 members of a Northern Plains tribe and 1,268 members of a tribe located in the Southwest. Structured interviews were conducted by other trained tribal members to obtain information on ST and cigarette smoking history, alcohol use, and demographics. Each participant was also evaluated for the presence of PTSD, panic disorder, and major depression.

Both tribes had similar rates of ST use: 31 percent for the Northern Plains tribe and 30 percent for the Southwest tribe. Users in the Northern Plains were younger than non-users, while Southwest users were older. Alcohol use disorder was more prevalent among lifetime ST users from both tribes. No association was found between lifetime ST use and the presence of either panic disorder or major depression. However, those with PTSD in the Northern Plains tribe had a 1.6 times higher odds of ST use. This association was not found in the Southwest tribe. For both tribes, the researchers discovered increased odds for ST use as the number of coexisting psychiatric diagnoses increased. They note that the association between ST use and psychiatric disorders is not as strong overall as it is for cigarette smoking. The study was supported in part by AHRQ (HS10854).

See "Smokeless tobacco use and its relation to panic disorder, major depression, and posttraumatic stress disorder in American Indians," by Craig N. Sawchuk, Ph.D., Peter Roy-Byrne, M.D., Carolyn Noonan, M.S., and others in the September 2012 *Nicotine & Tobacco Research* 14(9), pp. 1048-1056. ■ *KB*

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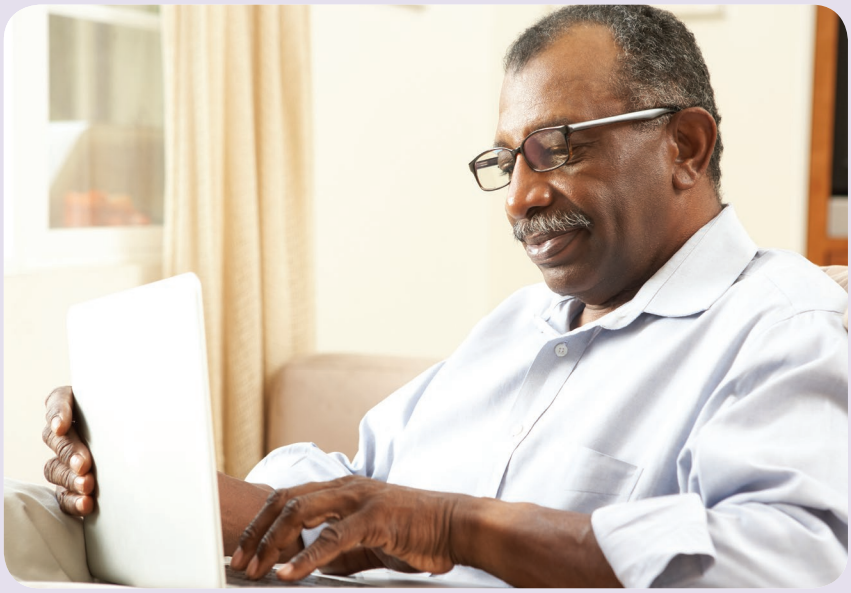
Safety-net patients are interested in using electronic communications with their health care providers



A growing number of medical practices are using electronic communication tools such as the internet, email, and text messaging to communicate with their patients. A majority of patients seen at resource-poor safety net clinics are also interested in using email and patient portals to communicate with their medical providers, reveals a new study. However, this interest is currently unmet within safety-net clinics that do not offer patient portals or secure messaging. The study authors suggest that safety-net clinics invest in technologies that allow for robust communication between clinicians and patients, train patients not adept at using the technology, and find ways to tailor electronic health communication to patient language and literacy level.

They surveyed a diverse group of patients from a large urban safety-net clinic network in San Francisco. The survey asked the participants about current use of email in everyday life (how often used, whose account was used), interest in communicating with health care providers via email, and demographic characteristics (including native language and self-rated English proficiency).

Overall, 60 percent of the participants used email, and 71 percent were interested in communicating with their health care providers by email. However, only 19 percent of those with email accounts reported using email for this purpose. Individuals who did not use or have access to email were more likely to express lack of interest, while those with email access were tenfold more likely to be interested in communicating with practitioners by email.

Interest in electronic communications with health care providers differed significantly by age, education, race/ethnicity, primary language, and English proficiency. However, among users of email, none of the demographic factors showed significant differences in interest. The findings were based on the survey responses of 416 adult patients at 6 community clinics operated by the San Francisco Department of Public Health. The study was funded in part by AHRQ (HS17594).

More details are in "Access, interest, and attitudes toward electronic communication for health care among patients in the medical safety net," by Adam Schickedanz, M.D., David Huang, M.D., Andrea Lopez, B.S., and others, in the July 2013 *Journal of General Internal Medicine* 28(7), pp. 914-920. *DIL*

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Limiting coverage of weight loss surgery to centers of excellence does not improve outcomes

In 2006, the Centers for Medicare & Medicaid Services (CMS) limited coverage of weight loss surgery to centers of excellence (COEs). Designation as a COE is based on three criteria: (1) hospital structure and process elements, (2) minimum hospital volume, and (3) a mandate to submit data to a clinical registry. Implementation of the CMS national coverage decision did not significantly improve the outcomes for any complication of weight loss surgery, according to a new study.

The study's examination of hospital discharge data from 2004–2009 on 321,464 patients in 12 States did find improved outcomes during this period, but the improvement was already underway prior to the CMS decision. When the researchers directly compared outcomes between hospitals designated under CMS criteria as COEs and those without COE status, they found no significant differences for any complication, serious complications, or reoperation.

During the study period, there were major shifts in procedure use that contributed to improved outcomes. Laparoscopic surgery rates rose for all patients undergoing bariatric surgery, and use of open gastric bypass declined for Medicare patients (45 percent before and 10 percent after the coverage decision) and for non-Medicare patients (40 percent before and 9 percent after). Laparascopic band surgery increased greatly for all patients. The study findings suggest that CMS should reconsider its decision to confine coverage of weight loss surgery to centers of excellence. This study was supported by AHRQ (HS17765).

See "Bariatric surgery complications before vs. after implementation of a national policy restricting coverage to centers of excellence," by Justin B. Dimick, M.D., Lauren H. Nichols, Ph.D., Andrew M. Ryan, Ph.D., and others in the February 27, 2013 *Journal of the American Medical Association* 309(8), pp. 792-799. ■ *MWS*

Larger gastric sleeves during laparoscopic sleeve gastrectomy may reduce leaks without impacting weight loss

Laparoscopic sleeve gastrectomy (LSG) is a bariatric surgical procedure that removes 80 percent of the stomach's volume by stapling the stomach into a smaller sleevelike pouch. The procedure is performed by firing a surgical stapler along an orogastric bougie (used to size the sleeve). Debate exists about whether creating tighter (i.e., smaller) sleeves to achieve more weight loss comes at the expense of higher leak rates that can cause infection and prolonged hospital stay. A new systematic review and meta-analysis of 9,991 patients who underwent LSG, found lower leak rates with large gastric sleeves without any affect on weight loss.

The meta-analysis found that the risk of leaks decreased by 47 percent when the bougie used to calibrate the sleeve was at least 40 Fr. Leak rates were 2.5 percent for bougie size under 40 Fr, 1.7 percent for bougie sizes 40–49 Fr, and 0.9 percent for bougie size at least 50 Fr. However, 69 percent of the patients had a bougie less than 40 Fr in size. The researchers reported that a total of 198 leaks occurred, an incidence of 2.2 percent among 8,922 LSG patients.

When the researchers examined the effect of bougie size on the percent of excess weight loss, they found no significant difference for up to 36 months between those with bougie size less than 40 Fr and those with bougie size 40 Fr or greater. Neither the distance between the LSG transection from the pylorus (at least 5 cm in 68 percent of those patients for which it was known) nor the type of material used to buttress the staple line impacted the likelihood of a leak. The researchers call for longer-term studies to conclusively establish the effect of bougie size on weight loss after LSG. Their findings were based on data on 9,991 LSG patients from 112 studies. The review was funded in part by AHRQ (HS19473).

More details are in "Surgical strategies that decrease leak after laparoscopic sleeve gastrectomy. A systematic review and meta-analysis of 9991 cases," by Manish Parikh, M.D., Redda Issa, B.A., Aileen McCrillis M.L.I.S., and others in the February 2013 *Annals of Surgery* 257(2), pp. 231-237. ■ *DIL*

Compliance with Joint Commission's discharge measure reduces mortality in heart failure patients

Heart failure is the most frequent reason for hospital admission and mortality in Medicare beneficiaries, costing $10.7 billion just for inpatient care alone each year. Neither market competition levels nor better adherence to most heart failure performance measures provided by the Joint Commission lowered mortality rates, according to a new study. However, careful attention to the Joint Commission's discharge instructions and assessment of patients' left ventricular function did lower mortality rates in an incremental manner for hospitals with the highest mortality rates.

The researchers analyzed data from 3,011 hospitals participating in the Joint Commission program on standardized heart failure performance measures. These four measures consist of prescribing specific heart failure medications at discharge, discharge instructions, smoking cessation counseling, and evaluation of left ventricular (LV) systolic function. They also rated each hospital on its level of market competition.

The average annual number of heart failure cases per year was 451,536. Mortality rates were .01 at 7 days, .06 at 30 days, .14 at 90 days, and .32 at 1 year. Hospitals varied widely in their performance on the measures. In an unadjusted analysis, higher levels of adherence to LV function assessment resulted in a 1.6 percent lower mortality at 1 year. Smoking cessation counseling produced a 0.8 percent lower mortality. When the researchers adjusted for market competition intensity and other hospital, patient, and market characteristics, only the discharge instructions measure significantly reduced mortality. Even just a 1 percent increase in this measure resulted in a 0.2 percent lower mortality at 7 days. In hospitals with the highest mortality rates, greater adherence to discharge instructions and LV function assessment resulted in greater improvements in patient outcomes. The study was supported by AHRQ (HS17944).

See "The relationship between hospital market competition, evidence-based performance measures, and mortality for chronic heart failure," by Jared Lane K. Maeda, Ph.D., M.P.H., and Anthony T. Lo Sasso, Ph.D., in the Summer 2012 *Inquiry* 49, pp. 164-175. *KB*

Aldosterone antagonists reduce readmission for heart failure, but boost risk of readmission for excess potassium

A new study shows that older patients with heart failure and reduced ejection fraction (weak pumping power of the heart), who start taking aldosterone antagonist (AA) drugs when discharged from the hospital, do not show the decreased mortality or hospital readmissions for cardiovascular problems observed in randomized clinical trials. These patients did exhibit reduced readmission for heart failure, but also showed a significant increase in their risk of readmission for high blood potassium (hyperkalemia). The AA drugs (spironolactone and eplerenone) are diuretic agents that cause reduction in sodium—but not potassium—levels in the blood via the kidneys. Although, in landmark randomized clinical trials, the AAs were found to reduce mortality among patients with heart failure and reduced ejection fraction by 24 to 30 percent, and hospital readmissions by 40 percent, no good study had been done of the drugs' effects in patients seen as part of regular clinical practice.

In this study, the researchers followed 5,887 patients enrolled in a clinical registry for heart failure patients; 1,070 (18.2 percent) began AA therapy after hospital discharge. When the AA treated and untreated groups were compared, cumulative incidence rates for mortality (49.9 percent vs. 51.2 percent) and cardiovascular readmission (63.8 percent vs. 63.9 percent) were not significantly different. However, the cumulative rates of heart failure readmission at 3 years (38.7 percent vs. 44.9 percent) and hyperkalemia readmissions within 30 days (2.9 percent vs. 1.2 percent) were significantly different. The findings were based on data from the heart failure clinical registry, linked to Medicare claims, for 2005–2010, for those age 65 years or older. The study was funded by AHRQ (Contract No. 290-05-0032 and grant HS21092).

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Aldosterone antagonists

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More details are in "Associations between aldosterone antagonist therapy and risks of mortality and readmission among patients with heart failure and reduced ejection fraction," by Adrian F. Hernandez, M.D., M.H.S., Xiaojuan Mi, Ph.D., Bradley G. Hammill, M.S., and others in the November 28, 2012 *Journal of the American Medical Association* 308(20), pp. 2097-2107. ■ *DIL*

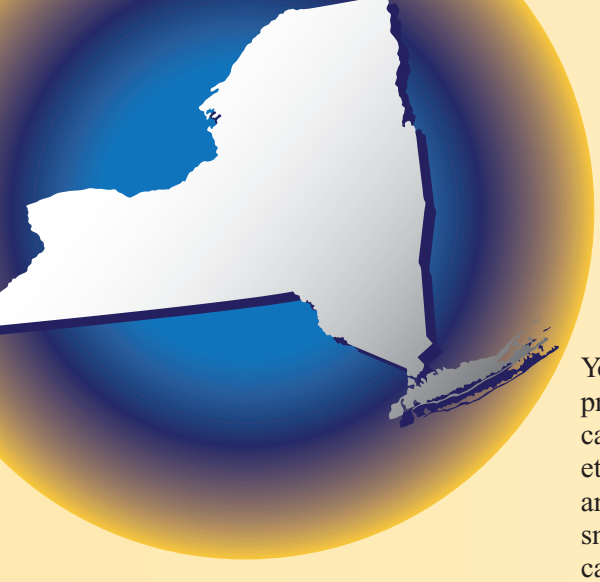
Serum and urine biomarkers point to possible gender, racial differences in mechanism of lumbar spine osteoarthritis

Joint metabolism biomarkers found in serum and urine suggest possible gender and racial differences in the mechanisms underlying lumbar spine osteoarthritis, suggests a new study. Community-based studies of intervertebral disk degeneration, a key sign of spinal osteoarthritis, occurs in 50–64 percent of individuals 65 years and older. So far, there is no evidence leading to a predictive test. But there are associations between important biomarkers of bone degeneration and two radiographic indications of osteoarthritis of the lumbar spine, disc space narrowing (DSN) and osteophytes (OST)—also called bone spurs, according to the study.

The researchers examined 547 persons enrolled in the Johnston County Osteoarthritis Project. Measuring biomarkers related to the collagen proteins that act as reinforcing rods in bone (NTX-1, CTX-II, C2C, CP-II), the bone matrix that cements them together (cartilage oligomeric matrix protein, or COMP), and osteoarthritis-related inflammation (hyaluronic acid, or HA), the researchers found significant differences in mean biomarker levels for HA and C2C across the severity of DSN, and of CTX-II across the severity of both DSN and OST.

An association between HA and DSN occurs in women, but not in men. In whites, there was a modest 10 percent reduction in the association between NXT-I and OST, and no association in blacks. Persons with low back pain symptoms were almost twice as likely to have DSN, but no association was seen for persons without lower back symptoms. Some of these associations suggest to the researchers that biological differences in the pathologic processes leading to DSN and OST may be gender- and race-specific. The study was funded in part by AHRQ (HS19479, Contract No. 290-10-00014).

More details are in "Association between serum and urine biomarkers and lumbar spine individual radiographic features: the Johnston County Osteoarthritis Project," by Adam P. Goode, P.T., D.P.T., Ph.D., Steve W. Marshall, Ph.D., Virginia Byers Kraus, M.D., Ph.D., and others in the November 2012 *Osteoarthritis and Cartilage* 20(11), pp. 1286-1293. ■ *DIL*



State Spotlight

New York

Drivers refer to their dashboards to check data on their speed and distance. Data-driven researchers and clinicians look at AHRQ's online dashboards from State Snapshots to gauge the overall status of health care in their States.

The dashboard at the top of the Web page for each State provides a needle gauge ranging from weak to strong, which summarizes more than 100 care quality measures. Scrolling down the page, just like looking under the hood of a car to identify problems, the Snapshots offer specific information on how a State is doing in areas such as types of care, settings of care, common clinical conditions, and special areas, including diabetes, asthma, and *Healthy People 2020*.

In June, *Research Activities* began a bimonthly column to shine a spotlight on individual States that use information from their State Snapshots. Our first column profiled Iowa. In this issue, we hit the road with the Empire State.

A New York State of health

Compared to other States, New York is in an "average category" for overall health quality, as reported on its State Snapshot. New York's weakest measures include hospital care measures and respiratory disease measures. New York's strongest measures include preventive care and nursing home care. There are larger racial and ethnic disparities in hospital care and avoidable hospitalizations but smaller disparities in nursing home care.

"I found that the information in the State Snapshots gives you the context of the State and tells you something about racial and ethnic composition, income, and other areas. It's helpful for me to not only see where New York is compared to elsewhere, but to really understand and be able to more deeply see differences, for example, between New York and Utah, which have huge differences," says Foster Gesten, M.D., medical director of the State's Office of Quality and Patient Safety. "I could tell you what my biases about other States would be, but when I go to the State context, I can actually look at the dials and see why we're different."

The Snapshots help Gesten gauge progress and develop plans. "Some of our investments in primary care or in chronic disease management flow from being able to see where in New York we are outliers," says Gesten. "Certainly data, whether it's from AHRQ or other sources that show where New York is relative to avoidable hospitalizations and readmissions has been a driver for us in our reform efforts, whether it's patient-centered medical homes (PCMHs), moving patients into managed care, or developing health-home programs focusing on individuals at high risk of avoidable hospitalization."

The data serve as a benchmark for New York. "We see areas where we're lagging or need to focus to help provide justification to the legislature, to the budget office, and to ourselves. Looking at some of the data around where New York stands on diabetes measures, for example, or asthma measures, led us to develop a benefit policy a few years ago to have Medicaid pay for certified asthma educators and certified diabetic educators," explains Gesten. More recently, he has used data from different sources to make investments in primary care and in PCMHs. He saw this as a "real opportunity to try to institutionalize the chronic care model through creating incentives for practices to transform along the lines of the PCMH."

Diverse terrain

"One of our biggest challenges is our diversity—from the very rural farming counties that aren't very populated to New York City, which is a focus for immigration—so the health department thinks about all kinds of infectious diseases from all around the world, different cultures' traditions, and being able to provide care to all these diverse populations," says Jonathan P. Curtin, M.D., medical director in the Division of Provider Relations and Utilization Management at the Office of Health Insurance Programs at the New York State Department of Health.

"To try to summarize the state of health care in New York is always

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State spotlight

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perilous," says Gesten. "New York is a multi-volume story."

Myths busted

As president of the Niagara Health Quality Coalition and developer of an independent Web site for patients, Bruce Boissonnault busts what he calls "myths" about publishing performance measurements: patients wouldn't know how to use the data, patients wouldn't understand the data, and publishing the data wouldn't make a difference.

"When we began, patients believed that all hospitals were about the same or they sometimes had the erroneous belief that if a hospital was good at heart attack care or open heart surgery care or something else they were famous for, there would be a halo effect and people would assume that they were good at everything," Boissonnault told *Research Activities*. "I think we've successfully shown that a hospital can be statistically significantly better, have better results consistently year after year in heart attack care, but, for example, might be average or below average for congestive heart failure.

Another myth is that patients won't know how to use the information. Says Boissonnault, "We did research. The way I describe it is if you ask a classroom full of 5-year-olds what is albuterol, if none of them have asthma, none of them will know what you're talking about. But if it's a class of kids who have asthma, they'll usually pull out their inhalers and, say, 'This is albuterol.' So, if it's your laparoscopic cholecystectomy that you're facing, you're likely to know what that means, or if it's your acute myocardial infarction that you're at higher risk of, you're liable to know what that means. This notion that people won't know what to do with the data is false. The emphasis of all of our work, however, is to help you to have a more informed discussion with your doctor, not for you to play doctor."

Since publishing his State's hospital performance data, Boissonnault points to improvements. "Statewide, mortality has improved for the measures that we publish that have never been published before. Mortality rates have improved by an average of more than 50 percent," he explains. "That does not mean that it's gone from 60 down to 10; it means that the average mortality rate for heart attack was 4 percent, and now it's 2 percent in the State. We know that health care itself is improving, but some of the improvement is plausibly related to the fact that the measures are out there.

He notes that 12 out of 14 hospital error rates the State measures have improved. There's been a 25 percent reduction in the number of hospitals doing procedures below the volume thresholds recommended in the scientific literature [considered to correlate with good outcomes]. Essentially these are the thresholds that underpin the AHRQ Volume Indicators.

A few years ago, Boissonnault got a call from a reporter at a business paper questioning the value of posting hospital performance information for the public. "The reporter said, 'Gee, we just saw that only five percent of consumers use your report when making a decision on where to be hospitalized,' and I said, 'That sounds like a home run. I'm thrilled.'"

But Boissonnault also warns: "Our research suggests that a lot of this progress could be reversed if the measures go away. The thing we have done right is do it every year." *KM*

Increased access of patients with diabetes to physicians increases total costs but not cost growth

An initiative at an integrated regional health care system to increase patient access to providers and information increased total costs for enrollees with diabetes, according to a new study. In 2003 the integrated health care system Group Health in Seattle increased patient-centered access by launching the MyGH Web site, providing enrollees with advanced access (same-day appointments) to primary care physicians (PCPs), providing direct access to some specialists, and making changes in PCP compensation to align with the initiative. The researchers examined usage and costs for 9,871 members with type 1 or 2 diabetes who were enrolled continuously from 1998 through 2006.

By the last quarter of 2006, 32 percent (3,127) of the enrollees had signed up and were authenticated to use the MyGH Web site. One-fourth of all enrollees sent secure emails to their providers in this quarter. During full implementation, primary care visits declined while primary care contacts (primary care visits and secure message threads) increased once secure messaging was introduced in 2003. Visits with specialists rose slightly over the study period, and emergency department visits grew from 0.05 visits per person per quarter during the pre-initiative period to more than 0.10 visits per person quarterly during full implementation.

Quarterly total costs of care (adjusted for inflation) rose from $1,946 in the first quarter of 1998 to $3,295 in the fourth quarter of 2006, but costs grew at the same rate (5.7 percent) in the pre-initiative period and during full implementation. While the rate of change in pharmacy costs and specialty care costs fell modestly, but significantly, from pre-initiative to full implementation, the annual rate of change in primary care costs, emergency care costs, inpatient costs, and lab costs increased significantly between the two periods. The study was funded by AHRQ (HS14764).

More details are in "Does a large-scale organizational transformation toward patient-centered access change the utilization and costs of care for patients with diabetes?" by David Grembowski, Ph.D., M.A., Melissa L. Anderson, M.S., James D. Ralston, M.D., M.P.H., and others, in the October 2012 *Medical Care Research and Review* 69(5), pp. 519-539. ■ *DIL*

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Quality regulation of nursing homes leads to better care quality, at least in some areas

Both Federal and State governments set minimum quality and safety standards for nursing homes. A new study concludes that more stringent State regulation leads to better quality for four of seven measures of nursing home quality: certified nursing assistant (CNA) staffing, licensed practical nurse (LPN) staffing, risk-adjusted urinary incontinence, and decline in residents' activities of daily living (ADL). Greater regulatory stringency did not affect either high-risk pressure sores or hotel expenditures (linens, laundry, housekeeping, and maintenance), and had a negative impact on registered nurse (RN) staffing by leading to fewer RNs. This latter finding might be due to nursing homes substituting expensive RN labor with less expensive LPNs or CNAs, note the researchers.

The stringency of regulation was measured by the HRSI, an index based on the number and percentage of deficiencies per facility, the percent of facilities with any deficiency or substandard care, and the average number of State and Federal civil monetary penalties per facility. The study included all 16,352 Medicare and Medicaid certified nursing homes and all of their residents during 2005 and 2006.

After considering other factors influencing quality of care, and using instrumental variables techniques to account for the endogeneity of regulation and quality, the researchers found that more stringent regulations improve quality at least in some dimensions. Based on their cost-effectiveness estimates, they suggest that increasing the stringency of regulation is an effective policy tool for improving quality in nursing homes.

See "The effect of State regulatory stringency on nursing home quality" by Dana B. Mukamel, Ph.D., David L. Weimer, Ph.D., Charlene Harrington, Ph.D., and others in the October 2012 *HSR: Health Services Research* 47(5), pp. 1791-1813. Reprints (AHRQ Publication No. 13-R028) are available from AHRQ.* ■ *MWS*

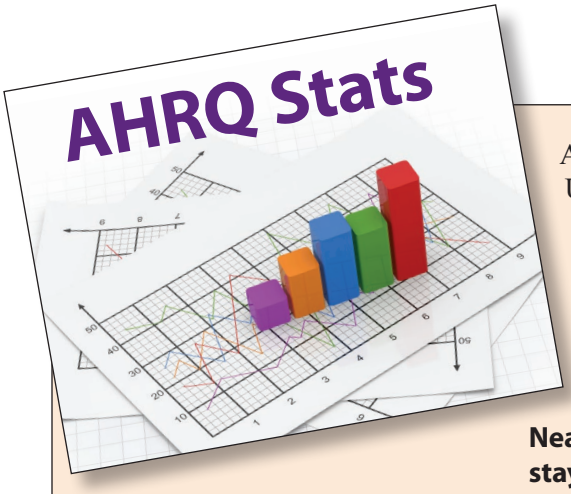
Nursing home residents with dementia have an increased risk of adverse events from warfarin

Many of the 1.6 million nursing home residents with dementia have multiple illnesses and take many potentially interacting medications. A new study found that nursing home residents with dementia who are being treated with the blood-thinner warfarin to prevent blood clots due to other conditions are at higher risk of adverse warfarin events (AWEs) than are residents without dementia. The researchers studied a group of 435 nursing home residents receiving warfarin therapy (218 of whom had been diagnosed with dementia, 217 without dementia), and observed these residents for up to 12 months.

Residents with dementia received warfarin treatment for 10 percent fewer days (239 days vs. 262 days), but had essentially the same number of international normalized ratio (INR) tests (to monitor whether the blood is sufficiently thinned to prevent blood clots or too thinned and thus risk hemorrhage). There was no difference for residents with or without dementia in the number of days with an INR in the subtherapeutic, therapeutic, and supratherapeutic range.

After adjusting for resident and facility characteristics, the researchers found that residents with dementia had a significant 36 percent higher risk of a preventable or potential adverse warfarin event than residents without dementia. Having more than the all-facility median for registered nurse or licensed practical nurse time available per resident reduced the risk of a preventable or potential adverse warfarin event by a significant 34 percent. The findings were based on data from a clinical trial conducted in 26 Connecticut nursing homes. The study was funded in part by AHRQ (HS16463).

More details are in "Dementia and risk of adverse warfarin-related events in the nursing home setting," by Jennifer Tjia, M.D., M.S.C.E., Terry S. Field, D.Sc., M.P.H., Katherine M. Mazor, Ed.D., and others in the October 2012 *American Journal of Geriatric Pharmacology* 10(5), pp. 323-330. ■ *DIL*



Cesarean births jump 82 percent

Births by Cesarean section increased by 82 percent between 1997 and 2010, while births of babies by normal delivery decreased 56 percent among women ages 18 to 44. (Source: AHRQ Healthcare Cost and Utilization Project Statistical Brief #148 *Most Frequent Conditions in U.S. Hospitals, 2010* available at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb148.jsp.

Nearly two-thirds of hospital stays in 2010 involved one or more procedures

Nearly two-thirds of the 39 million hospital stays in the United States in 2010 were for patients who had one or more procedures done. (Source: AHRQ Healthcare Cost and Utilization Project Statistical Brief #149 *Most Frequent Procedures Performed in U.S. Hospitals, 2010* available at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb149.jsp).

Hospitalizations for knee arthroplasty doubled between 1997 and 2010

Hospitalizations of patients undergoing knee arthroplasty roughly doubled between 1997 and 2010—from 329,000 to 730,000 procedures. (Source: AHRQ Healthcare Cost and Utilization Project Statistical Brief #149 *Most Frequent Procedures Performed in U.S. Hospitals, 2010*, available at www.hcup-us.ahrq.gov/reports/statbriefs/sb149.jsp).

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Women's Health

Treatment of hypertension, including use of contraindicated drugs, is common during pregnancy

Pregnant women are commonly exposed to antihypertensive medications, including in some instances medications that are considered contraindicated in pregnancy, according to a new study. Using data for women insured through Medicaid from 2002 to 2007, which covers approximately 40 percent of all pregnancies in the United States, the researchers identified 48,453 Medicaid-insured women who were exposed to antihypertensive medications during pregnancy (4.4 percent of the group). The prevalence of exposure to antihypertensive drugs at any time during pregnancy increased from 3.5 percent of the entire group in 2000 to 4.9 percent in 2006.

Over the entire time period, 1.9 percent of the group had antihypertensive drug exposure during the first trimester, 1.7 percent during the second trimester, and 3.2 percent during the third trimester. Despite professional guidelines recommending methyldopa and labetalol as the first-line treatments for hypertension during pregnancy, many other agents were commonly used, some of which are considered contraindicated in pregnancy. The study was funded in part by AHRQ HS18533).

More details are in "Patterns of outpatient antihypertensive medication use during pregnancy in a Medicaid population," by Brian T. Bateman, M.D., Sonia Hernandez-Diaz, M.D., M.P.H., Dr.P.H., Krista F. Huybrechts, M.S., Ph.D., and others in the October 2012 *Hypertension* 60(4), pp. 913-920. ■ *DIL*

Patient Safety Indicators for hemorrhage and infections can be adapted for use in childbirth

Patient Safety Indicators (PSIs) are intended to provide a low-cost screening tool to identify complications or adverse events that may be amenable to change through the implementation of hospital system-level changes. Although three PSIs are specifically focused on birth trauma to the mother or newborn, other key safety indicators, such as those related to hemorrhage and infection, exclude pregnancy. The rationale for the exclusion of pregnant women has remained unclear. A new study found that hospital-level measures of childbirth-associated hemorrhage and infection are feasible, vary widely, and demonstrate considerable opportunity for improvement. To be adapted for use with pregnant women, both PSIs required major changes to the technical specifications because of pregnancy-specific codes and coding practices, note the researchers.

To examine the potential of the two PSIs to include pregnant women, they used data on 508,842 patient discharges from the 2009 California Patient Discharge Dataset. For all deliveries, the hemorrhage indicator rate was higher (2.5 percent) than in the total population (0.26 percent) and for nonpregnant women of reproductive age (0.18 percent). Although infection rates were lower for all deliveries than for the total population (0.18 percent vs. 1.20 percent), they were highly associated with cesarean versus vaginal birth (0.43 percent vs. 0.05 percent) and ranged from 0 to 1.5 percent across hospitals.

Although the two measures could not be combined with the AHRQ PSIs as currently defined, they both identified important conditions that varied widely across hospitals. This suggests that a modified version of these indicators may have a role in monitoring care for women experiencing childbirth. This study was supported by AHRQ (HS17713).

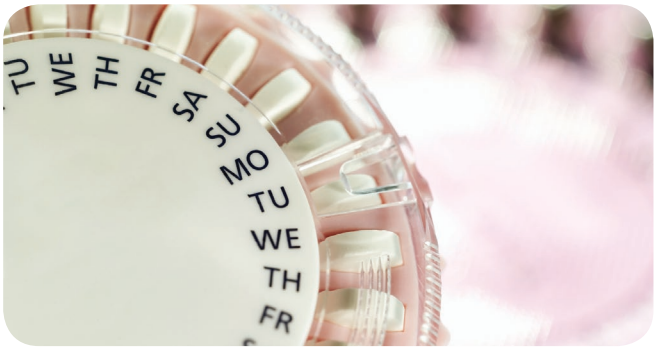
See "AHRQ Patient Safety Indicators: Time to include hemorrhage and infection during childbirth," by Kimberly D. Gregory, M.D., Lisa M. Korst, M.D., Ph.D., Michael C. Lu, M.D., and Moshe Fridman, Ph.D., in the March 2013 *Joint Commission Journal on Quality and Patient Safety* 39(3), pp. 114-122. ■ *MWS*

More research needed on effectiveness of oral contraceptive use for prevention of ovarian cancer

Current evidence is inconclusive to recommend for or against the use of oral contraceptives solely for the prevention of ovarian cancer, according to a recent research review by AHRQ and the Centers for Disease Control and Prevention.

The review does find that the use of oral contraceptives may increase life expectancy by one month when noncontraceptive benefits are included (e.g., reduced deaths from ovarian, colorectal, and endometrial cancers). However, the harm/benefit ratio of oral contraceptives for ovarian cancer prevention alone is uncertain when the increased risk of breast cancer, cervical cancer, and cardiovascular events associated with oral contraceptive use are taken into consideration.

The overall strength of evidence for oral contraceptives in preventing ovarian cancer is moderate to low, primarily because of the lack of well-designed clinical trials and inconsistent reporting of important information, including the duration of use of oral contraceptives. More well-designed research studies



are needed to determine whether the use of oral contraceptives solely to prevent ovarian cancer can be recommended when considering their demonstrated risks.

Although it is the eighth most common cancer in women, ovarian cancer is the fifth leading cause of cancer death. The overall 5-year survival rate for

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Ovarian cancer

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ovarian cancer is only 42 percent, compared with 88 percent for breast cancer and 63 percent for colorectal cancer. This is due in large part to the later stage at presentation compared with other common cancers. Because of the challenges inherent in screening and treatment for ovarian cancer, identifying effective primary prevention strategies is an important approach for reducing morbidity and mortality. These findings are available in the research review *Oral Contraceptive Use for the Primary Prevention of Ovarian Cancer* at http://go.usa.gov/jb7B. ■

Comparative Effectiveness Research

New review evaluates latest data on rate control and rhythm control strategies for treating atrial fibrillation

Atrial fibrillation, an irregular and often rapid heart beat that can hamper blood flow to the body, affects more than 2.3 million Americans. Strategies to slow the heart rate to a normal range (rate control) and strategies to revert the heart rhythm back to normal (rhythm control) result in similar outcomes in all-cause mortality, cardiovascular mortality, and stroke in older patients with mild symptoms from atrial fibrillation, according to a new research review by AHRQ's Effective Health Care Program.

The review finds that rate-control strategies are superior to rhythm-control strategies in reducing hospitalizations from cardiovascular events in these patients. Although there are a limited number of studies that assessed comparable rate-control therapies and outcomes, strong evidence showed the benefit of calcium channel blockers (verapamil or diltiazem) compared with digoxin for ventricular rate control.

For comparisons of methods for electrical cardioversion into sinus rhythm, the review found strong evidence that use of a single biphasic waveform is more effective than use of a single monophasic waveform. There was also strong evidence supporting pulmonary vein isolation versus antiarrhythmic drugs for maintaining sinus rhythm in a select subset of patients (i.e., younger patients with paroxysmal atrial fibrillation and mild structural heart disease).

Because of the wide range of options within each strategic treatment approach for atrial fibrillation, additional studies are needed to evaluate the comparative safety and effectiveness of individual antiarrhythmic medications and procedures, especially within specific subgroups of patients that are likely to be encountered in clinical practice (such as those with heart failure). These findings and others can be found in the research review *Treatment of Atrial Fibrillation* at http://go.usa.gov/jbAH.

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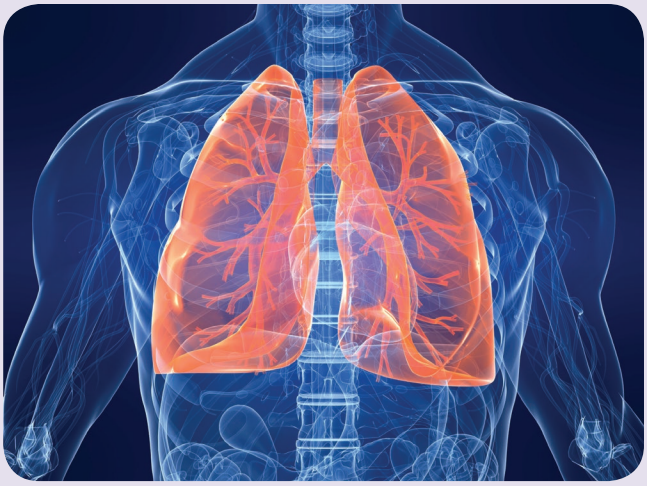
Insufficient evidence to compare effectiveness of local, nonsurgical therapies for stage I non-small cell lung cancer or airway-obstructive lung tumors

There is not enough evidence in the research literature to determine the relative effectiveness (e.g., symptom relief, survival, disease control) and harms (e.g., treatment-related toxicities) of local, nonsurgical therapies to treat patients with stage I non-small cell lung cancer (NSCLC) or patients with airway obstruction from advanced lung tumors, according to an AHRQ research review.

Although surgery is the standard of care for patients with stage I NSCLC, those who are either deemed inoperable or decline surgery may be treated with local, nonsurgical therapies such as radiotherapy, intensity-modulated radiation therapy, and stereotactic body radiation therapy (SBRT). The largest body of evidence for local, nonsurgical therapies in patients with stage I disease is on SBRT, also known as stereotactic ablative radiotherapy. This suggests it may be gaining popularity among clinicians as a preferred treatment. However, there is not enough high-quality evidence available to determine the relative effectiveness of one therapy over another.



Ultimately, the review highlights the need for additional clinical studies that directly compare local, nonsurgical therapies, especially considering that NSCLC is the leading cause of cancer-related mortality in the United States and worldwide. These findings are available in the research review *Local Nonsurgical Therapies for Stage I and Symptomatic Obstructive Non–Small-Cell Lung Cancer* at http://go.usa.gov/jbsP. ■

More research needed to compare effectiveness of MRSA screening strategies in health care settings

There is not enough evidence in the research literature to compare the effectiveness of screening strategies for methicillin-resistant *Staphylococcus aureus* (MRSA) in select patient populations, concludes an AHRQ research review. The review examines both universal and targeted MRSA-screening strategies compared with no screening.

The review found low strength of evidence that screening all hospitalized patients (universal screening) for MRSA bacteria decreases hospital-acquired MRSA infections compared with no screening. However, there was not enough evidence to draw conclusions on the effectiveness of universal MRSA screening strategies on other outcomes, including the risk of death and other potential harms. Ultimately, the review underscores the need for additional well-designed studies that take into account factors that may complicate results, for example, the overall decreasing incidence of MRSA infection and the use of multiple techniques to prevent infection.

MRSA is a type of staph bacteria that is resistant to certain antibiotics called beta-lactams. These antibiotics include methicillin and other more common antibiotics such as oxacillin, penicillin, and amoxicillin. In the community, most MRSA infections are skin infections. More severe or potentially life-threatening MRSA infections occur most frequently among patients in health care settings.

After the completion of an Effective Health Care review of the topic, an AHRQ-funded project on different approaches to reduce MRSA infection was published in the May 30, 2013 online issue of the *New England Journal of Medicine*. In that study, researchers achieved a 44 percent reduction in all-cause bloodstream infections and significantly reduced the presence of MRSA when they decolonized every patient who entered the intensive care unit, regardless of MRSA status. AHRQ funds numerous research projects to identify the best approaches for reducing MRSA and other healthcare-associated infections. The research review *Screening for Methicillin-Resistant Staphylococcus Aureus (MRSA)* is available at http://go.usa.gov/j3Az.

Clinical Decisionmaking

Conference papers explore shared decisionmaking between clinicians and patients

In September 2011, AHRQ convened a conference of health care and health communication experts to explore the challenges of differing levels of evidence in promoting shared decisionmaking between clinicians and patients and to propose strategies for addressing these challenges. These strategies are needed to assist clinicians in addressing clinical uncertainty in a positive and constructive fashion.

Conference speakers explored various aspects of uncertainty that focused on: communicating precision and uncertainty in clinical evidence, eliciting patients' values and preferences in decisionmaking, and supporting shared decisions when clinical evidence is low. The following eight papers that evolved from the AHRQ-sponsored conference (Contract No. 290-08-10015) were published in a special supplement to the February 2013 *Medical Care Research and Review* 70(1).

Braddock, C.H., III. "Supporting shared decision making when clinical evidence is low," pp. 129S-140S.
This paper examines shared decisionmaking (SDM) and its relevance to all clinical decisionmaking under conditions of clinical uncertainty. It emphasizes

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the potential for using SDM to empower patients to become more fully engaged in understanding the strength of the evidence and what it means in terms of the choices the patient faces, drawing on the concept of gist (general impression) knowledge and the role that it can play in the decisionmaking process.

Epstein, R.M., and Gramling, R.E. "What is shared in shared decision making? Complex decisions when the evidence is unclear," pp. 94S-112S.
The authors examine issues around clinical decisionmaking when evidence is unclear or inadequate. They also discussed when other factors, such as clinical complexity and nonclinical influences (e.g., family input, religious beliefs), create further challenges that may be amenable to resolution through varied strategies, including health systems reorientation.

Fraenkel, L. "Incorporating patients' preferences into medical decision making," pp. 80S-93S.
This paper focuses on patient values and strategies for bringing them into the decisionmaking process. Strategies include discussions of current methods for engaging patients (e.g., conjoint analysis, best-worst scaling) and implications for point-of-care decision support.

Han, P.K.J. "Conceptual, methodological, and ethical problems in communicating uncertainty in clinical evidence," pp. 14S-36S.
The author offers an overview of conceptual, methodological, and ethical problems in communicating uncertainty in clinical evidence. He argues that the key to managing uncertainty constructively involves greater conceptual clarity and use of consistent representational methods that can be integrated into patient-centered interventions in ways that help patients cope with uncertainties.

Llewellyn-Thomas, H.A., and Crump, R.T. "Decision support for patients: Values clarification and preference elicitation," pp. 50S-79S.
This paper explores the need for values clarification (VC) and preference elicitation (PE) as integral components of the full decision support process, including positing a wider catalogue of approaches to VC/PE.

McCullough, L.B. "The professional medical ethics model of decision making under conditions of clinical uncertainty." pp. 141S-158S.
The author applies principles integral to the medical ethics model to decisionmaking under conditions of clinical uncertainty. He emphasizes specific virtues implicit in the roles of the decisionmakers (i.e., integrity on the part of the clinical professional and prudence on the part of the patient), since these virtues impact decision dynamics and outcomes.

Politi, M.C., Lewis, C.L., and Frosch, D.L. "Supporting shared decisions when clinical evidence is low," pp. 113S-128S.
This paper discusses applications of SDM that extend beyond situations in which equipoise between treatment options and or clinical outcomes exist to suggest applications of SDM in situations in which evidence is low or conflicting. The authors conclude with recommendations about priority areas for future research, including studies to assess effective management of uncertainty in clinical settings—a topic largely unexplored through formal research.

Zikmund-Fisher, B.J. "The right tool is what they need, not what we have: A taxonomy of appropriate levels of precision in patient risk communication," pp. 37S-49S.

The author examines the need for improved precision in patient risk communication, presenting a taxonomy of seven distinct risk concepts and discussing how patient acceptance of a health risk message varies across the seven conceptual areas. ■ *MWS*

AHRQ releases new guide to help hospitals engage patients and families in their health care

A new AHRQ resource is now available online that gives hospitals four evidence-based strategies to engage patients and families in their care. The field-tested strategies outlined in AHRQ's new *Guide to Patient and Family Engagement in Hospital Safety and Quality* can help hospitals make care better and safer by bridging the communication gaps among patients and families and their health care providers.

"Many of the errors we see in health care stem from communication problems," said AHRQ Director Carolyn M. Clancy, M.D. "That's why we developed this resource, to give hospitals practical, evidence-based information to improve communication on the front lines of health care—and ultimately keep patients safer."

The guide provides four evidence-based strategies that hospitals can use to implement patient- and family-centered care practices. Each strategy includes educational tools and resources for patients and families, training materials for health care professionals, and real-world examples that show how strategies are being implemented in hospital settings. The strategies describe how patients and families, working with hospital staff, can:

- **Be advisors.** How hospitals can recruit and train patients and family members to serve as advisors and train clinicians and hospital staff to work effectively with them.
- **Promote better communication at the bedside to improve quality.** How patients and families can interact with the health care team, understand the different roles that team members play, and see the importance of being partners with clinicians.
- **Participate in bedside shift reports.** Teaching patients and families what a bedside shift report is, how they can contribute to it, and how nurses can support those contributions.
- **Prepare to leave the hospital.** Different approaches clinicians can use to plan and keep track of the tasks that need to be done before a patient is discharged from the hospital.

Research to develop the guide found that communication gaps between patients and caregivers can occur when hospitals do not address the issues that patients think are most important. Also, few tools are available to give health providers insights into patients' needs and concerns. As a result, efforts by patients, families, and health care providers to communicate more effectively with each other can fall short of their goal.

"We know that patients and families are eager to play a role in making health care safer," said Jeff Brady, M.D., associate director of AHRQ's Center for Quality Improvement and Patient Safety. "This guide fills an important—and largely unmet—need and gives hospitals concrete ways to put this shared interest into action." For a video clip of Dr. Brady discussing the new guide, please visit: http://www.youtube.com/watch?v=INzhyhY3e5E&feature=youtu.be&noredirect=1. You can access the guide at http://go.usa.gov/jb6J.

Help AHRQ shape new tools for shared decisionmaking

AHRQ's Effective Health Care Program invites clinicians to participate in an online survey about their needs and preferences for tools to educate patients about their treatment options. The results will inform the development of new tools and a workshop that will help clinicians use comparative effectiveness research findings in shared decisionmaking with patients and caregivers. Your survey participation will help ensure that AHRQ provides resources that bring the most value to patients, caregivers, and health care professionals. You can access the survey at https://www.surveymonkey.com/s/AHRQ-EHC.

Materials from AHRQ Webinar on falls prevention now available

Materials from an April 18 AHRQ webinar (http://go.usa.gov/jbe4) that focused on the research and testing behind AHRQ's *Preventing Falls in Hospitals: A Toolkit for Improving Quality of Care* are now available on the AHRQ Web site. Nearly 1 million patients fall in U.S. hospitals each year. The toolkit is a guide that can help hospitals develop, implement, and sustain a falls prevention program.

The toolkit offers hospital clinical staff 35 evidence-based tools for falls prevention. The newly posted information, which includes audio from the webinar, slides, and a written transcript, demonstrates how these evidence-based tools were pilot tested to ensure they were realistically implementable, easy to use, and broadly applicable in the acute-care setting. Also presented are the challenges and opportunities experienced by pilot facilities, Charlton Memorial Hospital in Fall River, MA, and August Health in Fishersville, VA. You can access the complete *Preventing Falls in Hospitals* toolkit http://go.usa.gov/jbeG.

Use of HIE decreases repeat imaging in emergency departments

Using a health information exchange (HIE) can decrease repeat diagnostic imaging for back and head pain, according to research supported by AHRQ. Researchers analyzed cases from Memphis area emergency departments to better understand the impact of HIE on repeated x-rays, CAT scans, and other radiological studies. Doctors, nurses, and other clinicians working in emergency departments did not frequently look up patient test results through the HIE. However, when they did use the HIE to obtain prior results, there was a significant reduction in repeat testing. The study suggests that more research is needed to assess strategies to encourage providers to routinely access HIEs to determine if prior test results are available.

More details are in "Does health information exchange reduce unnecessary neuroimaging and improve quality of headache care in the emergency department?" in the February 2013 issue of the *Journal of General Internal Medicine*. You can access the abstract at www.ncbi.nlm.nih.gov/pubmed/22648609. The article, "Health Information Exchange Reduces Repeated Diagnostic Imaging for Back Pain," appeared in the July 2013 *Annals of Emergency Medicine*. You can access the abstract at www.ncbi.nlm.nih.gov/pubmed/23465552.

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Research Briefs

Berg, L.J., Delgado, M.K., Ginde, A.A., and others. (2012). "Characteristics of U.S. emergency departments that offer routine human immunodeficiency virus screening." (AHRQ grant T32 HS00028). ***Academic Emergency Medicine*** **19(8), pp. 894–900.**
This study examined 2008–2009 survey data on preventive health services performed in U.S. hospital emergency departments. It found that factors that significantly increased the likelihood of HIV screening included being at a county-owned hospital, having 24-hour social worker availability, and having at least 35 percent of patients without insurance.

Campbell, J.D., Zerzan, J., Garrison, L.P., and Libby, A.M. (2013). "Comparative-effectiveness research to aid population decision making by relating clinical outcomes and quality-adjusted life years." (AHRQ grant HS19464). ***Clinical Therapeutics*** **35(4), pp. 364-370.**
A gap exists in an approach for bridging various forms of evidence for population-level decisions about the superiority of alternative interventions. This article presents a framework for population-based decisionmakers to quantitatively weigh and better grasp the collective intervention-specific clinical risks and benefits and their uncertainty. The authors propose a comparative effectiveness research framework that extends decision-analytical modeling, without requiring the inclusion of cost, to incorporate comparative risks and benefits.

Chakraborty, D.P., Joons, H.-J., and Mello-Thoms, C. (2012, December). "Application of threshold-bias independent analysis to eye-tracking and FROC data." (AHRQ grant HS18365). ***Academic Radiology*** **19(12), pp. 1474-1483.**
This methodological study compares different schemes for evaluating radiologists' readings of radiographic images. These include the receiver operating characteristic (ROC) paradigm, which uses information about decisions made on images, and the free-response ROC paradigm, which uses information about decisions made on perceived suspicious regions. The researchers also add information gathered from eye tracking that is processed by algorithms.

Chambers, D.A., Haim, A., Mullican, C.A., and others. (2013, July-August). "[Editorial] Health information technology and mental health services research: A path forward." ***General Hospital Psychiatry*** **35(4), pp. 329-331. Reprints (AHRQ Publication No. 13-R058) are available from AHRQ.***
The authors introduce a series of papers developed in response to a joint AHRQ-National Institute of Mental Health workshop in November 2010 on health information technology (IT)—enhanced interventions for the treatment of mental disorders. The authors summarize the meeting discussions and the four papers that accompany the editorial. Finally, they describe what actions the two Agencies have taken to advance the agenda for mental health-related IT research, including four currently open AHRQ program announcements.

Kim, H., El-Kareh, R., Goel, A., and others. (2012). "An approach to improve LOINC mapping through augmentation of local test names." (AHRQ grant HS19913). ***Journal of Biomedical Informatics*** **45(4), pp. 651-657.**
To share test-related data between health care institutions, medical test names need to be mapped into a standardized vocabulary. The researchers describe a process to enhance local names by incorporating the required information for Logical Observation Identifiers, Names, and Codes (LOINC®) into the test names themselves, significantly increasing the number of test names successfully mapped into LOINC.

Kim, J.M., Labrique, A., West, K.P., and others. (2012, December). "Maternal morbidity in early pregnancy in rural northern Bangladesh." (AHRQ Grant T32 HS19488). ***International Journal of Gynecology and Obstetrics*** **119(3), pp. 227-233.**
The researchers used cross-sectional data from 42,896 pregnant women (5–12 weeks of gestation) enrolled

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in a vitamin A supplementation trial in Bangladesh to determine baseline maternal morbidity in the rural northern region of this poor country. The researchers found significantly increased risk of malnutrition for women with symptoms of anemia (30 percent), vaginal discharge (37 percent), or high-grade fever (23 percent) compared with women without these symptoms.

McNellis, R.J., Genevro, J.L., and Meyers, D.S. (2013). "Lessons learned from the study of primary care transformation." ***Annals of Family Medicine*** **11 (Supplement 1), pp. S2-S5. Reprints (AHRQ Publication No. 13-R057) are available from AHRQ.***

In 2010, AHRQ awarded 14 grants to better understand the processes and determinants of primary care transformation. The authors of this commentary summarize the characteristics of the practices and interventions studied by the 14 grantees and highlight their impressions, as the funding agency, of the lessons learned on the process of transforming a primary care practice into a patient-centered medical home.

Miller, G.E. and Selden, T.M. (2012). "Tax subsidies for employer-sponsored health insurance: Updated microsimulation estimates and sensitivity to alternative incidence assumptions." ***Health Services Research*** **48(2, Part II), pp. 866-883. Reprints (AHRQ Publication No. 13-R051) are available from AHRQ.***

The authors of this paper simulated tax expenditures for employer-sponsored health insurance (ESI) to examine the sensitivity of ESI tax subsidy estimates to the effect of employer size and employee pay levels. The authors estimate that the total ESI tax subsidy for 2012 was $257.4 billion. Most of this subsidy goes to large establishments or those with workforces that are principally highly paid or full-time.

Norton, W.E., McCannon, C.J., Schall, M.W., and others. (2012 December). "A stakeholder-driven agenda for advancing the science and practice of scale-up and spread in health." (AHRQ grant HS19422). ***Implementation Science*** **7:118.**

A Conference To Advance the Science and Practice of Scale-Up and Spread of Effective Health Programs in Healthcare and Public Health, held in July 2010, made five major recommendations. The first two recommendations were to develop, evaluate, and refine innovative scale-up and spread methods, including novel incentives and pull strategies, and to develop and apply new approaches for evaluation of scale-up and spread.

Ritchie, C., Richman, J., Sobko, H., and others. (2012, November). "The E-Coach transition support computer telephony implementation study: Protocol for a randomized trial." (AHRQ grant HS17786). ***Contemporary Clinical Trials*** **33(6), pp. 1172–1179.**

The researchers are investigating the use of E-Coach, an interactive voice response-enhanced care transition intervention, to monitor patients with complex problems at home, using their personal telephone. The E-Coach intervention will be tested in a randomized controlled trial in patients with congestive heart failure and chronic obstructive pulmonary disease, who were admitted to a large tertiary care hospital. The primary outcome measure will be the rehospitalization rate at 30 days after discharge.

Ryan, A.M., and Bao, Y. (2013, April). "Profiling provider outcome quality for pay-for-performance in the presence of missing data: A simulation approach." (AHRQ grant HS18546). ***Health Services Research*** **48(2, Part II), pp. 810-825.**

For a panel of patients with major depression, the researchers used Monte Carlo simulation to evaluate error rates for a relative threshold (being above the 80th percentile for remission for providers) and an absolute threshold (having at least 30 percent of patients in remission) for 6-month recovery. Using a variety of scenarios, they found relative profiling had 20 percent lower total error rates and 50 percent lower error rates due to missing data than absolute profiling.

Sokas, R., Braun, B., Chenven, L., and others. (2013, April). "Frontline hospital workers and the worker safety/patient safety nexus." ***The Joint Commission Journal on Quality and Patient Safety*** **39(4), pp. 185-192. Reprints (AHRQ Publication No. 13-R059) are available from AHRQ.***

The authors summarize the content of a 1-day workshop on the relationship between worker safety for frontline—but nonclinician—health care workers (HCWs) and patient safety. Among the recommendations were to develop

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Research briefs

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champions and leaders at hospitals to push for the implementation of "person safety" for anyone entering the facility as a patient, visitor, or health care worker and to add nonclinician HCWs, as well as patients, to the hospital's quality and safety committee.

Stafford-Smith, M. (2013, March). "Can 'earlier biomarkers' help early biomarkers predict acute kidney injury?" (AHRQ grant HS15704). *Critical Care Medicine* 41(3), pp. 914-915.

Since there is currently limited understanding of why some patients sustain acute kidney injury related to heart surgery, the recent emergence of preoperative biomarkers with substantial explanatory value is very interesting. These early biomarkers include ouabain, brain natriuretic peptide, and hemoglobin A1c in non-diabetic patients. The author discusses recent literature in this area.

Zhang, Y., Wu, S.-H., Fendrick, A.M., and Baicker, K. (2013, March). "Variation in medication adherence in heart failure." *JAMA Internal Medicine* 172(6), pp. 468-470.

To study regional variation in heart failure (HF) medication adherence, the authors used Medicare Part D data for a 5 percent random sample of Medicare beneficiaries. They found that, on average, 52 percent of patients had good adherence for HF medications. The proportion having good adherence varied considerably by area, from the lowest 36 percent to the highest 71 percent.

Zhou, L., Plasek, J.M., Mahoney, L.M., and others. (2012). "Mapping Partners Master Drug Dictionary in RxNorm using an NLP-based approach." (AHRQ grant HS18288). *Journal of Biomedical Informatics* 45, pp. 626-633.

The authors seek to develop an automated method based on natural language processing (NLP) to facilitate the creation and maintenance of a mapping between RxNorm and a local medication terminology for interoperability and meaningful use purposes. They found that an automated approach based on NLP followed by human expert review is an efficient and feasible way for conducting dynamic mapping.

Zima, B.T., Murphy, J.M., Scholle, S.H., and others. (2013, March). "National quality measures for child mental health care: Background, progress, and next steps." (AHRQ grants HS20506, HS20503, HS20498). *Pediatrics* 131 (Supplement 1), S38-S49.

Recent recommendations for measures of the quality of care received by U.S. children have included few measures related to child mental health care. The authors review recent relevant health policy initiatives, the selection of national child health quality measures, and existing national standards for child mental health care. They include the strength of the evidence supporting them, an update on development of new quality measures related to child mental health care, and early lessons learned from these national efforts. ■

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